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PTO/SB/21 (08-03)
Approved for use through 08/30/2003. OMB 0651-0031
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TRANSMITTAL FORM (to be used for all correspondence after initial filing)	Application Number	10/708,196	
	Filing Date	02/15/2004	
	First Named Inventor	Chih-Chung Kang	
	Art Unit		
	Examiner Name		
Total Number of Pages in This Submission	3	Attorney Docket Number	OTMP0063USA

ENCLOSURES (Check all that apply)		
<input checked="" type="checkbox"/> Fee Transmittal Form	<input type="checkbox"/> Drawing(s)	<input type="checkbox"/> After Allowance communication to Technology Center (TC)
<input type="checkbox"/> Fee Attached	<input type="checkbox"/> Licensing-related Papers	<input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences
<input type="checkbox"/> Amendment/Reply	<input type="checkbox"/> Petition	<input type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief)
<input type="checkbox"/> After Final	<input type="checkbox"/> Petition to Convert to a Provisional Application	<input type="checkbox"/> Proprietary Information
<input type="checkbox"/> Affidavits/declaration(s)	<input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address	<input type="checkbox"/> Status Letter
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<input type="checkbox"/> Express Abandonment Request	<input type="checkbox"/> Request for Refund	
<input type="checkbox"/> Information Disclosure Statement	<input type="checkbox"/> CD, Number of CD(s) _____	
<input checked="" type="checkbox"/> Certified Copy of Priority Document(s)	Remarks	
<input type="checkbox"/> Response to Missing Parts/Incomplete Application	Response to the office action has been sent to the examiner by fax on 12/04/2003	
<input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53		
SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT		
Firm or Individual name	Winston Hsu, Reg. No.: 41,526	
Signature		
Date	3/15/2004	

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PTO/SB/17 (10-03)

Approved for use through 07/31/2006. OMB 0651-0032

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

FEE TRANSMITTAL for FY 2004

Effective 10/01/2003. Patent fees are subject to annual revision.

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$) 0.00

Complete if Known

Application Number	10/708,196
Filing Date	02/15/2004
First Named Inventor	Chih-Chung Kang
Examiner Name	
Art Unit	
Attorney Docket No.	OTMP0063USA

METHOD OF PAYMENT (check all that apply)

☐ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None

☒ Deposit Account:

Deposit Account Number: 50-0801
Deposit Account Name: North America International Patent Office

The Director is authorized to: (check all that apply)

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☐ Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account.

FEE CALCULATION

1. BASIC FILING FEE

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1001	770	2001	385	Utility filing fee	
1002	340	2002	170	Design filing fee	
1003	530	2003	265	Plant filing fee	
1004	770	2004	385	Reissue filing fee	
1005	160	2005	80	Provisional filing fee	
SUBTOTAL (1)				(\$) 0.00	

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

Total Claims: -20** = X =
Independent Claims: -3** = X =
Multiple Dependent: =

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1202	18	2202	9	Claims in excess of 20	
1201	86	2201	43	Independent claims in excess of 3	
1203	290	2203	145	Multiple dependent claim, if not paid	
1204	86	2204	43	** Reissue independent claims over original patent	
1205	18	2205	9	** Reissue claims in excess of 20 and over original patent	
SUBTOTAL (2)				(\$) 0.00	

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet	
1053	130	1053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for ex parte reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	110	2251	55	Extension for reply within first month	
1252	420	2252	210	Extension for reply within second month	
1253	950	2253	475	Extension for reply within third month	
1254	1,480	2254	740	Extension for reply within fourth month	
1255	2,010	2255	1,005	Extension for reply within fifth month	
1401	330	2401	165	Notice of Appeal	
1402	330	2402	165	Filing a brief in support of an appeal	
1403	290	2403	145	Request for oral hearing	
1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	110	2452	55	Petition to revive - unavoidable	
1453	1,330	2453	665	Petition to revive - unintentional	
1501	1,330	2501	665	Utility issue fee (or reissue)	
1502	480	2502	240	Design issue fee	
1503	640	2503	320	Plant issue fee	
1460	130	1460	130	Petitions to the Commissioner	
1807	50	1807	50	Processing fee under 37 CFR 1.17(q)	
1806	180	1806	180	Submission of Information Disclosure Stmt	
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	770	2809	385	Filing a submission after final rejection (37 CFR 1.129(a))	
1810	770	2810	385	For each additional invention to be examined (37 CFR 1.129(b))	
1801	770	2801	385	Request for Continued Examination (RCE)	
1802	900	1802	900	Request for expedited examination of a design application	

Other fee (specify) _____

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) (\$) 0.00

SUBMITTED BY

Name (Print/Type)	Winston Hsu	Registration No. (Attorney/Agent)	41,526	Telephone	886289237350
Signature		Date	3/15/2004		

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PTO/SB/02B (11-00)

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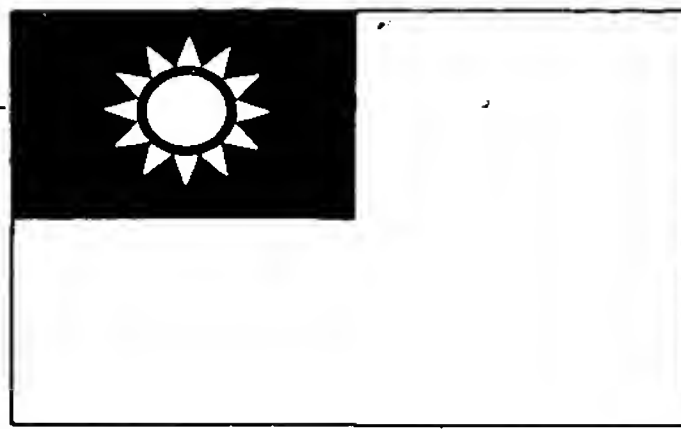
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DECLARATION — Supplemental Priority Data Sheet

Additional foreign applications:

Prior Foreign Application Number(s)	Country	Foreign Filing Date (MM/DD/YYYY)	Priority Not Claimed	Certified Copy Attached?	
				YES	NO
092203624	Taiwan R.O.C	03/05/2003	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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中華民國經濟部智慧財產局

INTELLECTUAL PROPERTY OFFICE
MINISTRY OF ECONOMIC AFFAIRS
REPUBLIC OF CHINA

茲證明所附文件，係本局存檔中原申請案的副本，正確無訛，
其申請資料如下：

This is to certify that annexed is a true copy from the records of this
office of the application as originally filed which is identified hereunder:

申請日：西元 2003 年 03 月 05 日
Application Date

申請案號：092203624
Application No.

申請人：中強光電股份有限公司
Applicant(s)

局長
Director General

蔡練生

發文日期：西元 2004 年 1 月 6 日
Issue Date

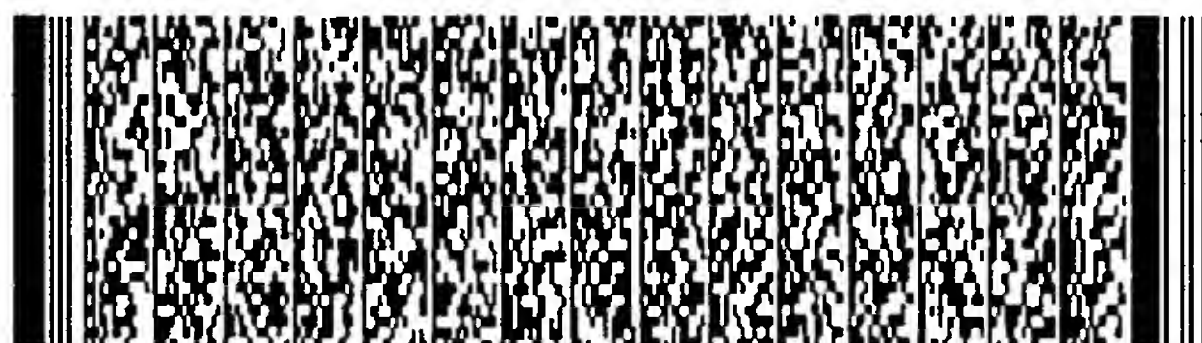
發文字號：09320017260
Serial No.

申請日期：	IPC分類
申請案號：	

(以上各欄由本局填註)

新型專利說明書

一、 新型名稱	中 文	鏡片強化結構
	英 文	Strengthened Mirror apparatus
二、 創作人 (共2人)	姓 名 (中文)	1. 康志忠 2. 曾湧泉
	姓 名 (英文)	1. Chih-Chung Kang 2. Yung-Chuan Tseng
	國 籍 (中英文)	1. 中華民國 TW 2. 中華民國 TW
	住居所 (中 文)	1. 新竹科學工業園區新竹市力行路11號 2. 新竹科學工業園區新竹市力行路11號
	住居所 (英 文)	1. No 11, Li Hsing Rd, Science-Based Industrial Park, Hsinchu, R. O. C. 2. No 11, Li Hsing Rd, Science-Based Industrial Park, Hsinchu, R. O. C.
三、 申請人 (共1人)	名稱或 姓 名 (中文)	1. 中強光電股份有限公司
	名稱或 姓 名 (英文)	1. Coretronic Corporation
	國 籍 (中英文)	1. 中華民國
	住居所 (營業所) (中 文)	1. 新竹科學工業園區新竹市力行路11號 (本地址與前向貴局申請者相同)
	住居所 (營業所) (英 文)	1. No 11, Li Hsing Rd, Science-Based Industrial Park, Hsinchu, Taiwan, R. O. C.
	代表人 (中文)	1. 張威儀
	代表人 (英文)	1. Wade Chang



四、中文創作摘要 (創作名稱：鏡片強化結構)

一種鏡片強化結構，包含一反射鏡，具有一反射面與一位於對側之背面；以及至少一強化件如蜂巢板，利用黏貼物黏貼在該反射鏡之背面，以增加反射鏡懸掛時的抗彎能力，以防止鏡片變形，進而提高影像品質，並且可防範鏡片爆裂安全問題，以提高產品品質。

陸、英文創作摘要 (創作名稱：Strengthened Mirror apparatus)

A strengthened mirror apparatus includes a reflection mirror having a reflection surface and a back surface on the opposite side, and at least a strengthened component such as honeycomb plate. By using adhesive material, the honeycomb plate is stuck on the back surface of the reflection mirror. Therefore, the apparatus enhances the anti-bending of the reflection mirror for preventing the mirror from distorting. Furthermore, the apparatus avoid the mirror crack to raise the image quality and the product



四、中文創作摘要 (創作名稱：鏡片強化結構)

陸、英文創作摘要 (創作名稱：Strengthened Mirror apparatus)

quality.



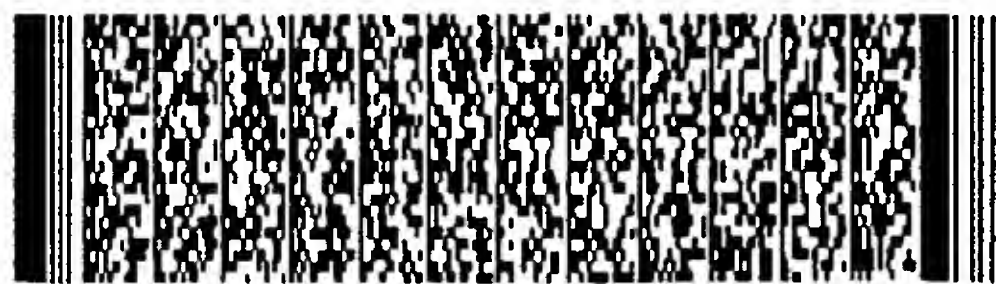
四、中文創作摘要 (創作名稱：鏡片強化結構)

伍、(一)、本案代表圖為：第___3B___圖

(二)、本案代表圖之元件代表符號簡單說明：

20	鏡片強化結構	21	大反射鏡
211	反射面	212	背面
22	強化件	23	黏貼物
24	鎖固元件	25	背蓋

陸、英文創作摘要 (創作名稱：Strengthened Mirror apparatus)



一、本案已向

國家(地區)申請專利

申請日期

案號

主張專利法第一百零五條準用
第二十四條第一項優先權

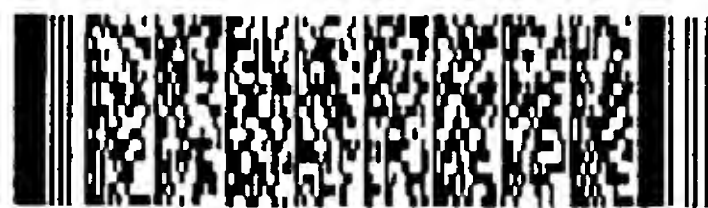
二、☐主張專利法第一百零五條準用第二十五條之一第一項優先權：

申請案號：

日期：

三、主張本案係符合專利法第九十八條第一項☐第一款但書或☐第二款但書規定之期間

日期：



五、創作說明 (1)

【 新 型 所 屬 之 技 術 領 域 】

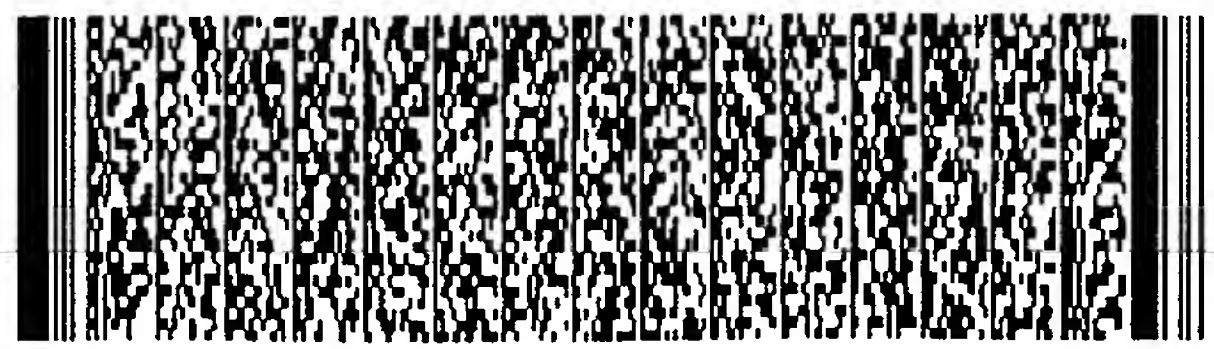
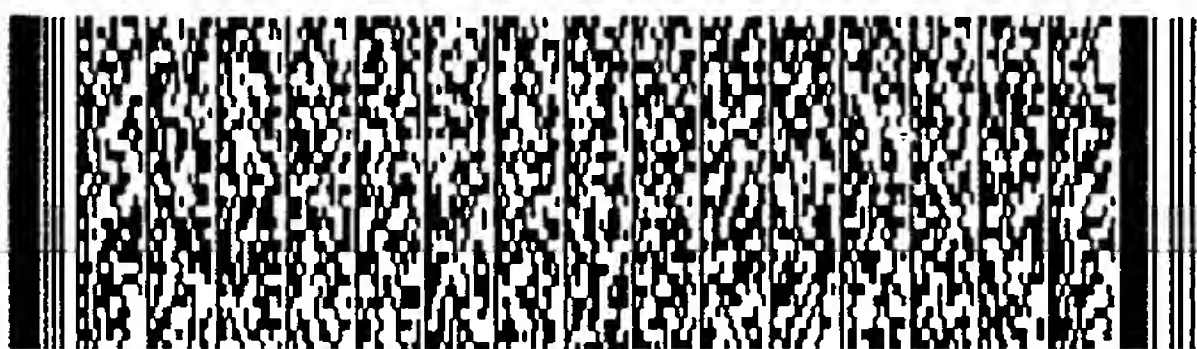
本創作關於一種鏡片強化結構，尤其關於背投影顯示裝置中用以強化鏡片之結構。

【 先 前 技 術 】

近年來，隨著光電技術快速發展，資訊視覺化已愈顯重要，而作為顯示裝置之背投影電視，其重要性及需求也急遽增加。因此，在量產之考量下，如何增加背投影電視之鏡片結構強度，進而提高市場競爭力，已成為業界研發的重要課題。

請參閱圖1，習知之背投影電視10主要係由前側之螢幕11、下側之底座12與後側之背蓋13形成背投影電視10之內部。背投影電視10內部於底座12上面設置一承座14，承座14上再設置一光學引擎15，於承座14一端並在光學引擎15前方設一小反射鏡16，且在螢幕11後方背蓋13內側設置一大反射鏡17。背投影電視10主要係利用光學引擎15產生具有影像資訊之光束，依序投射至小反射鏡16與大反射鏡17後，大反射鏡17再將光束投射至螢幕11上，形成背投影電視10之光學系統。

如圖2所示，習知背投影電視10之大反射鏡17，為使影像資訊光束在鏡面有最大範圍反射到螢幕，且容許其熱漲冷縮適當伸縮，故僅利用端邊之鎖固元件18夾住，而將大反射鏡17懸空固定在背蓋13，致大反射鏡17兩端的跨距過大，因大反射鏡中央並無任何支撐元件，所以大



五、創作說明 (2)

反射鏡17易受重力下拉而產生變形17'，尤其隨著背投影電視10尺寸的增大，大反射鏡17之尺寸亦隨之增加，鏡片變形之情況更加嚴重，明顯影響背投影電視10影像之品質。同時由於鏡片變形量過大，背投影電視10在組裝或搬運過程中，所形成振動極易造成鏡片破裂，亦會增加產品成本，而鏡片碎裂成許多小碎片，亦難以清理維修，且有安全顧慮。

【新型內容】

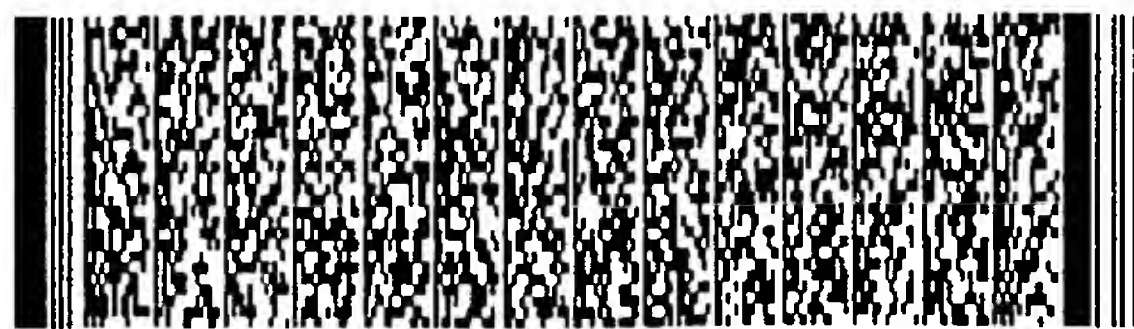
本創作之一目的在於提供一種鏡片強化結構，藉由鏡片背面強化結構，以增加鏡片懸掛時的抗彎能力，防止鏡片變形，進而提高影像品質。

本創作之另一目的在於提供一鏡片強化結構，藉由鏡片背面強化結構，增加抗振性，以避免鏡片破裂，降低成本。

為達成上述之目的，本創作為一種鏡片強化結構，包含一反射鏡，具有一反射面與一位於對側之背面；以及至少一強化件如蜂巢板等，利用黏貼物黏貼在該反射鏡之背面，以增加鏡片懸掛時的抗彎能力，以防止鏡片變形，進而提高影像品質，並且可防範鏡片爆裂安全問題，以提高人員在組裝或搬運時的安全性。

【實施例】

有關本創作為達成上述目的，所採用之技術手段及



五、創作說明 (3)

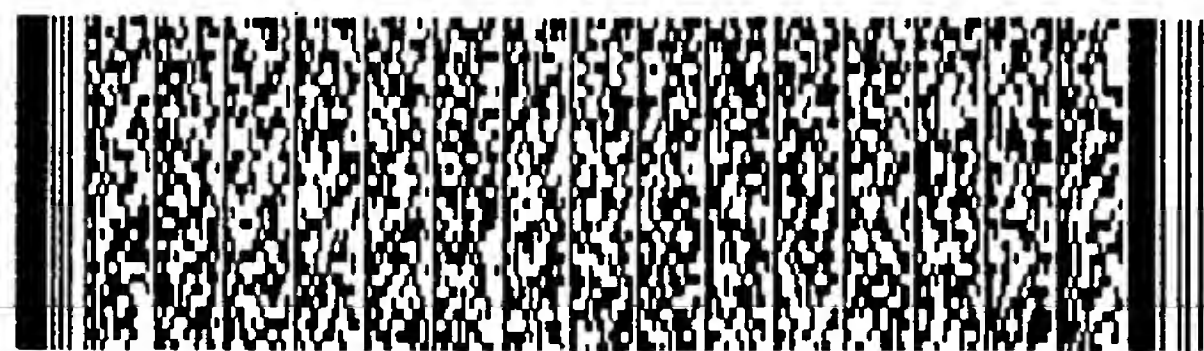
其功效，茲舉二較佳實施例，並配合圖式加以說明如下。

請參閱圖3A，本創作第一實施例之鏡片強化結構20主要包括一大反射鏡21及強化件22。其中大反射鏡21具有一反射面211與一背面212，其反射面211可將影像光束反射至螢幕上(未圖示)，而背面212則利用黏貼物23(例如：膠或者膠帶)，黏貼一強化件22(例如蜂巢板等)，形成一鏡片強化結構20。

如圖3B所示，鏡片強化結構20再利用鎖固元件24由端邊將鏡片強化結構20固定在背蓋25。本實施例強化件22所使用之蜂巢板，其材質可為鋁、金屬或紙等，由於蜂巢板的六邊形蜂巢結構，具有高剛度及重量輕等物理特性，不僅可加強大反射鏡21之結構強度，亦可避免增加背投影電視整體重量，同時藉由適當長度之強化件22，支撐於端邊之鎖固元件24，大反射鏡21中央與端邊可具有相當支撐力，可增加大反射鏡21組裝後的抗彎能力而可減少變形，讓反射之影像降低扭曲變形，進而提高影像品質。

此外，當背投影電視在組裝或搬運過程中，一旦施力不當時，由於大反射鏡背面212黏貼強化件22，當大反射鏡21破裂時，大反射鏡21不致碎裂成許多碎片四處飛濺，而可增加人員在組裝或搬運時的安全性，同時降低清理碎玻璃散佈背投影電視內部之困難性。

請參閱圖4A及圖4B，本創作第二實施例鏡片強化結



五、創作說明 (4)

構30本實施例與第一實施例的差別在於強化件32的橫向長度，亦即本實施例之強化件32較大反射鏡31之橫向長度長，同時在強化件32兩端上設有複數個螺孔321以供固定使用。如圖5所示，本創作鏡片強化結構30係利用鎖固元件34(例如：螺絲)穿過設於強化件32上之螺孔321，將強化件32鎖固在背蓋35上，以簡化鏡片強化結構30之固定結構。

以上所述者，僅為用以方便說明本創作之較佳實施例，本創作之範圍不限於該等較佳實施例，凡依本創作所作的任何變更，於不脫離本創作之精神下，皆屬本創作申請專利之範圍。



圖式簡單說明

【圖式簡單說明】

- 圖1 顯示習知背投影電視之光學系統示意圖。
- 圖2 顯示習知之背投影電視鏡片變形示意圖。
- 圖3A 顯示本創作第一實施例鏡片強化結構之外觀圖。
- 圖3B 顯示本創作第一實施例鏡片強化結構剖面圖。
- 圖4A及圖4B 顯示本創作第二實施例鏡片強化結構之外觀圖。
- 圖5 顯示本創作第二實施例鏡片強化結構與背蓋之結合圖。

【主要圖號說明】

- 20 鏡片強化結構
- 21 大反射鏡
- 211 反射面
- 212 背面
- 22 強化件
- 23 黏貼物
- 24 鎖固元件
- 25 背蓋
- 30 鏡片強化結構
- 31 大反射鏡
- 32 強化件
- 321 螺孔
- 34 鎖固元件



圖式簡單說明

35 背 蓋



六、申請專利範圍

1. 一種鏡片強化結構，包含：
一反射鏡，具有一反射面與一背面；以及
至少一強化件，利用黏貼物黏貼在該反射鏡之背面。
2. 依申請專利範圍第1項所述之鏡片強化結構，其中該反射鏡為大反射鏡。
3. 依申請專利範圍第1項所述之鏡片強化結構，其中該反射鏡為小反射鏡。
4. 依申請專利範圍第1項所述之鏡片強化結構，其中該黏貼物為膠。
5. 依申請專利範圍第1項所述之鏡片強化結構，其中該黏貼物為雙面膠。
6. 依申請專利範圍第1項所述之鏡片強化結構，其中該強化件為蜂巢板。
7. 依申請專利範圍第6項所述之鏡片強化結構，其中該蜂巢板為鋁、金屬或紙。
8. 依申請專利範圍第1項所述之鏡片強化結構，其中該強化件稍小於反射鏡。
9. 依申請專利範圍第1項所述之鏡片強化結構，其中該強化件長於反射鏡，以形成固定端。



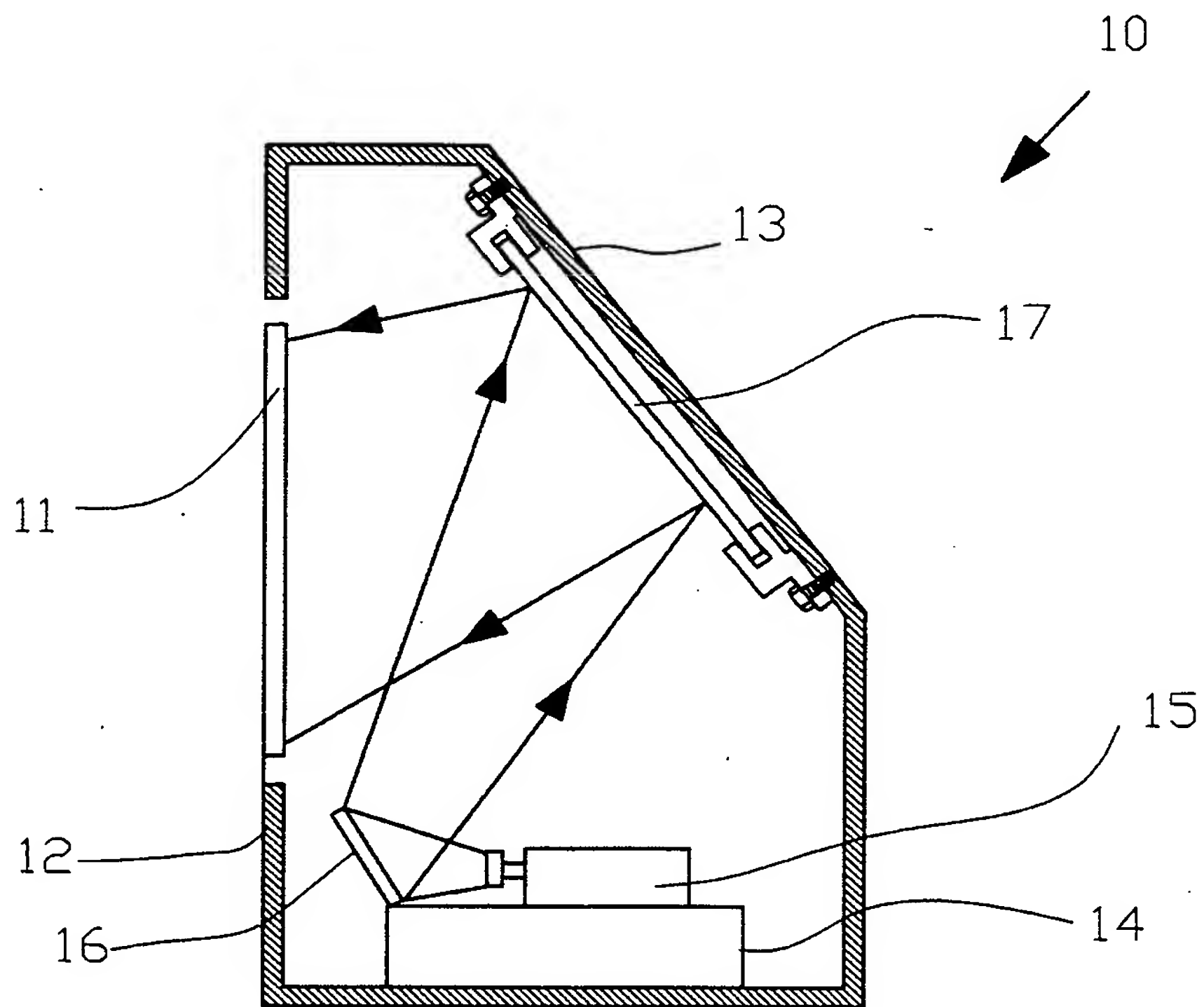


圖 1

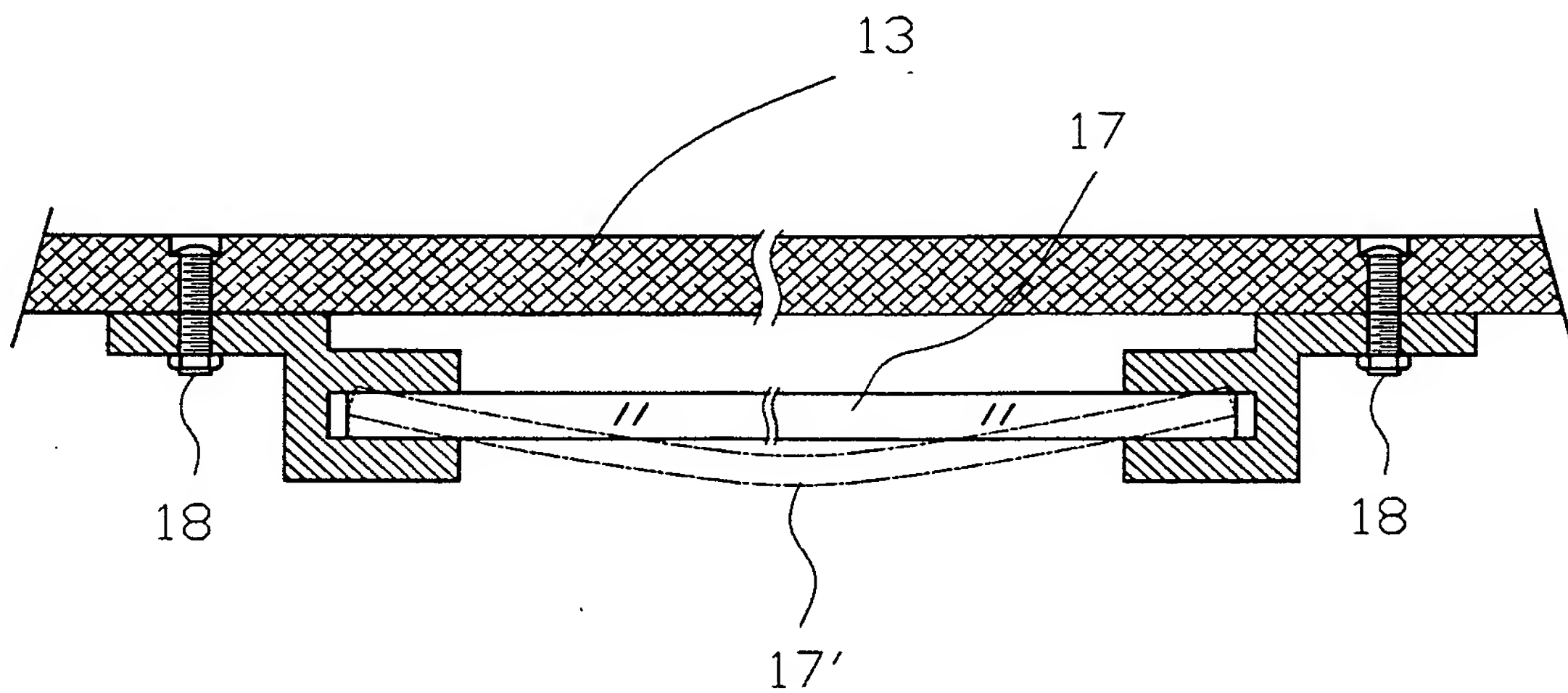


圖 2

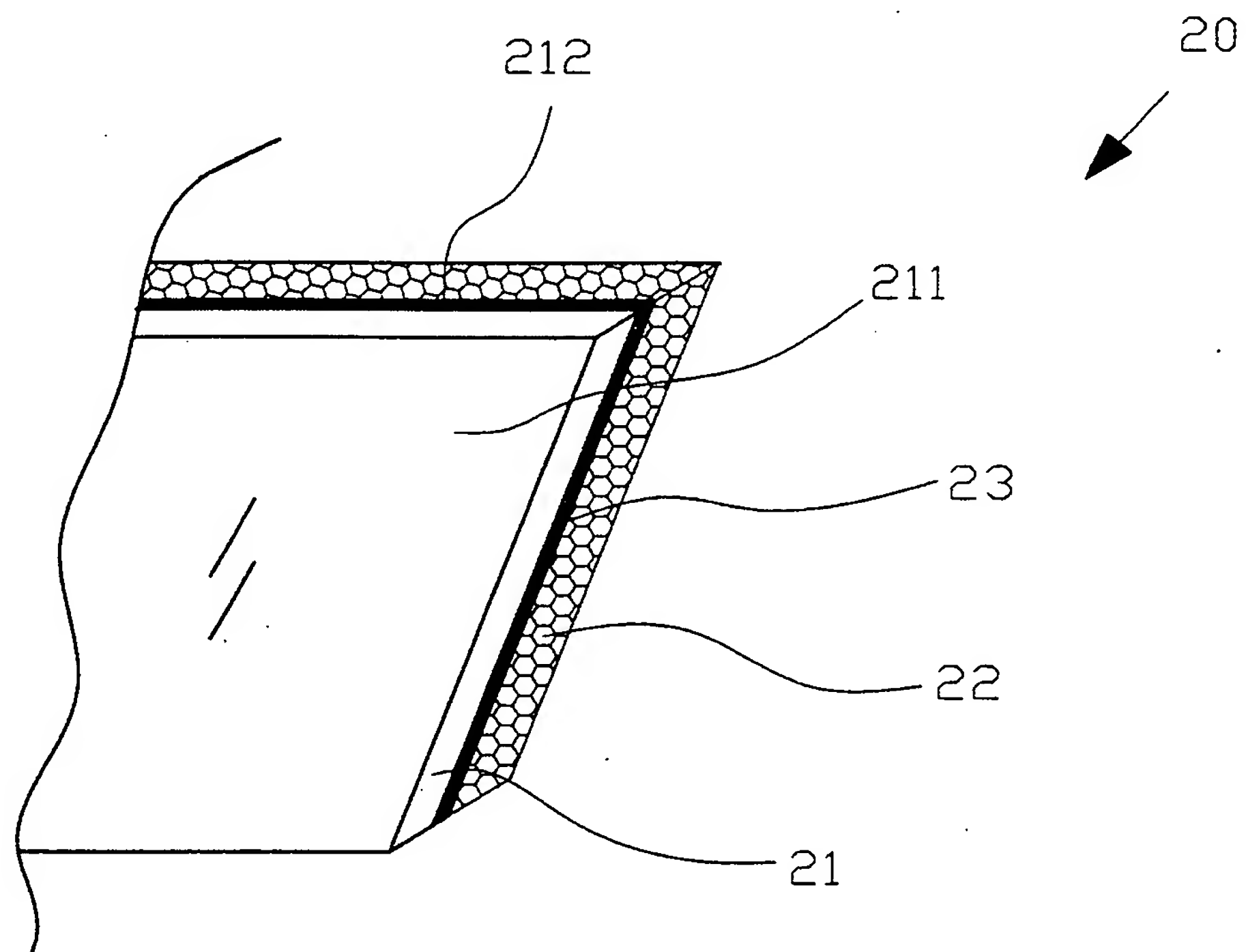


圖 3A

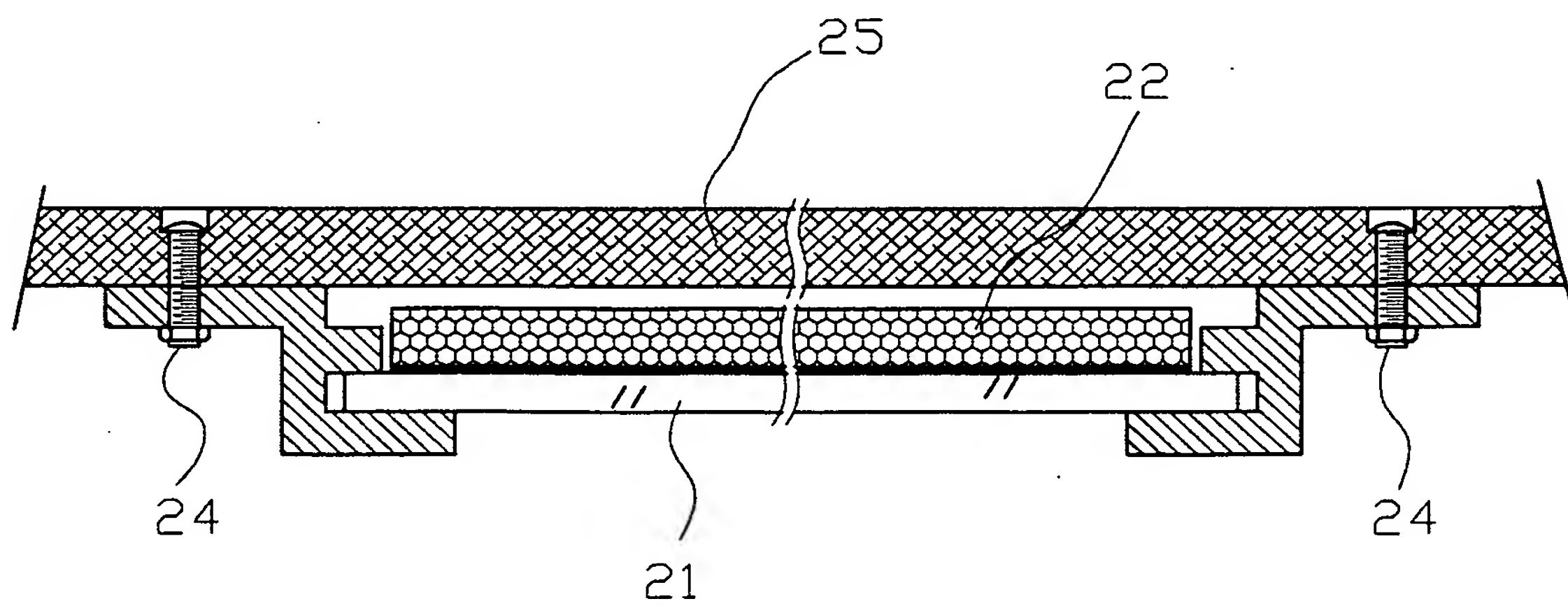


圖 3B

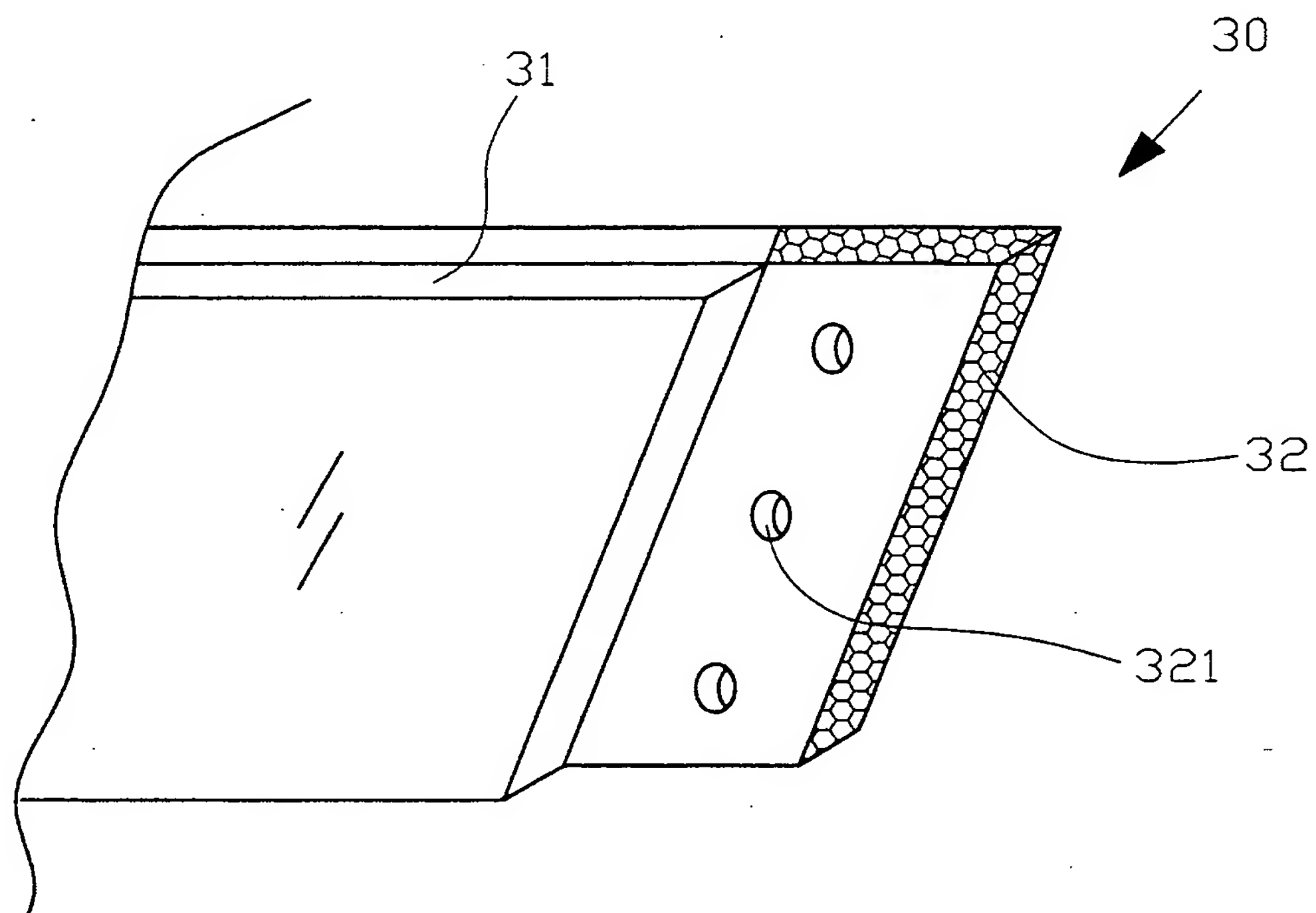


圖 4A

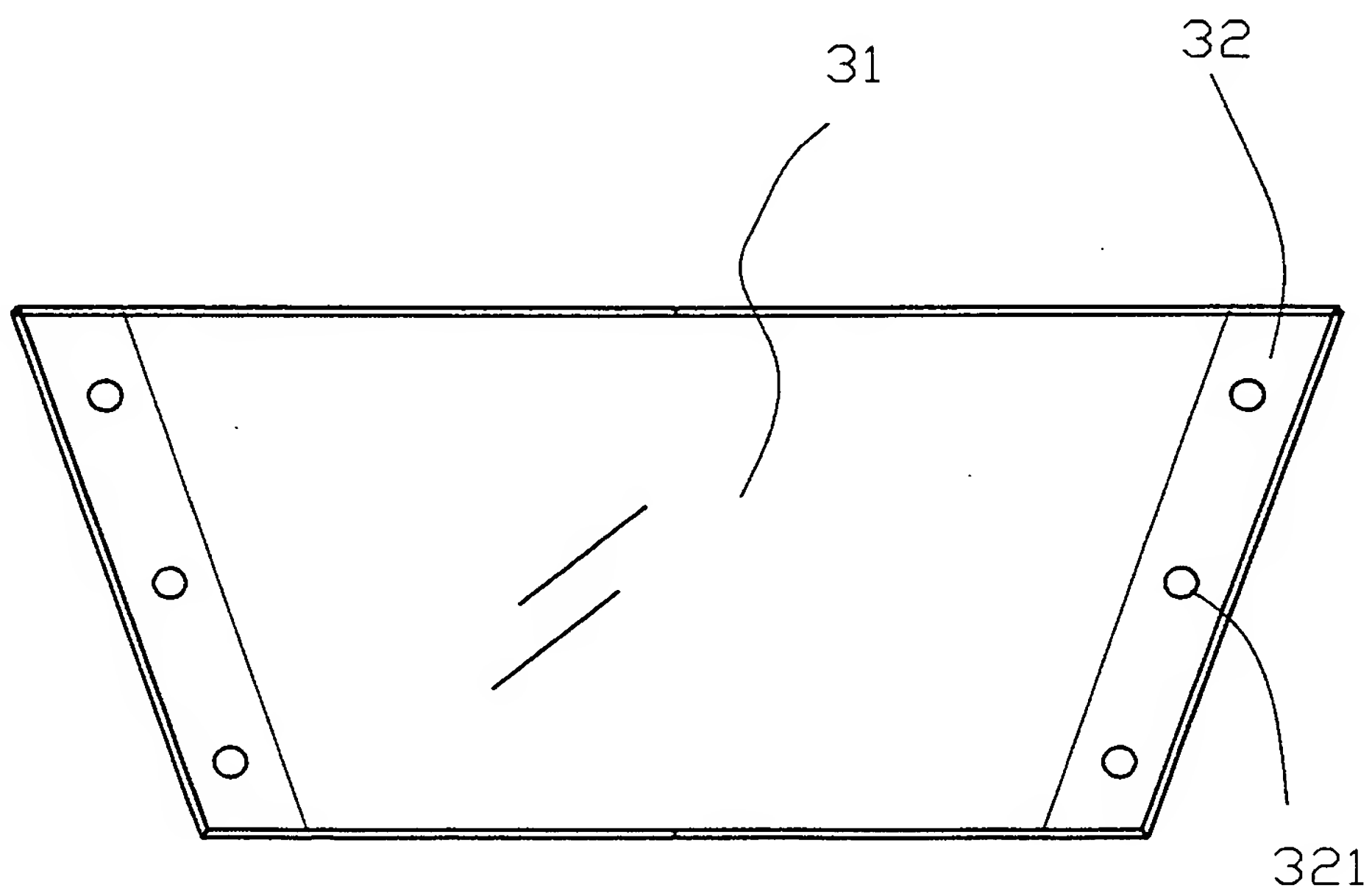


圖 4B

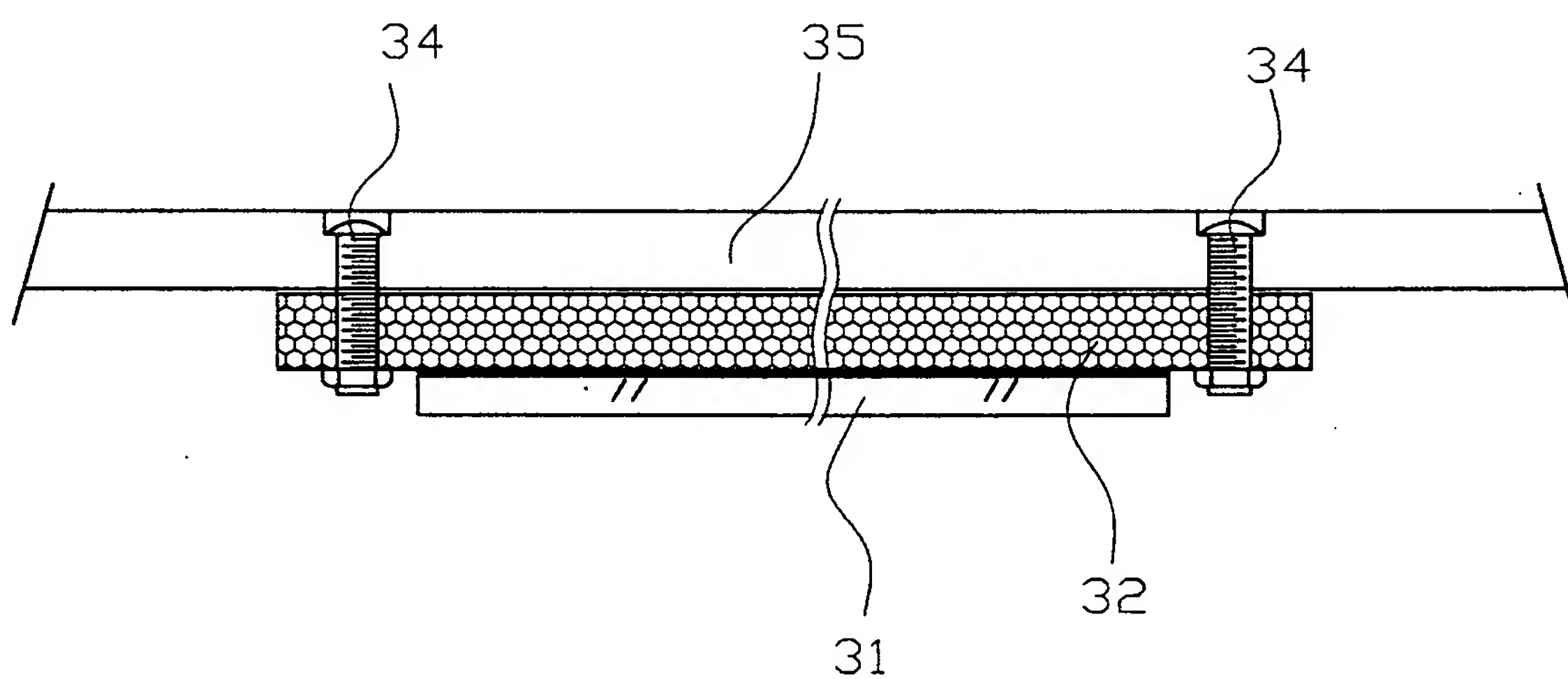


圖 5

